

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of the claims in the application:

**Listing of Claims:**

Claims 1-12: (previously canceled)

13. (Currently Amended) A sensor arrangement for use in seismic investigation of geological formations below the seabed comprising:

a plurality of sensor nodes (20), which are positioned for deployment on the seabed to acquire pressure waves and shear waves from the geological formations and to transfer seismic data to a surface receiver, wherein each sensor node (20) comprises a substantially cylindrical ~~structure~~ skirt (22) having a bottom with an opening, the bottom ~~that is adapted~~ adapted to penetrate into the seabed, and at least a first geophone (30) that is connected to the ~~structure~~ skirt (22).

Claims 14-15: (canceled)

16. (Currently Amended) A sensor arrangement according to claim ~~[[3]]~~ 13, further comprising a housing (27) that encloses ~~the at least a first~~ the first geophone (30) and is positioned at the top of the cylindrical ~~structure~~ skirt (22).

17. (Currently Amended) A sensor arrangement according to claim ~~[[4]]~~ 16, further comprising an open cage (37) that encloses ~~the at least a first~~ at least a first hydrophone (38) and is positioned above the housing (27).

18. (Currently Amended) A sensor arrangement according to claim ~~[[5]]~~ 16, further comprising a grip (40) that is fixed at the top for use with a ROV ROT.

19. (Currently Amended) A sensor arrangement according to claim ~~[[6]]~~ 16, wherein ~~the~~ each sensor node (20) is connected to a control unit (11) through an acoustic insulated cable (21).

20. (Currently Amended) A sensor arrangement according to claim ~~[[6]]~~ 13, wherein ~~the~~ each cylindrical ~~structure~~ skirt is manufactured of aluminum.

21. (Currently Amended) A sensor arrangement according to claim ~~[[6]]~~ 17, wherein ~~[[the]]~~ a hydrophone (38) is placed about 10 cm above the geophone (30).

22. (Currently Amended) A sensor arrangement according to claim ~~[[4]]~~ 16, wherein the housing (27) encloses three geophones (30-32) that are positioned with a 90° angle in relation to each other, and a tiltmeter.

Claim 23: (cancelled)

24. (Currently Amended) A sensor arrangement according to claim ~~[[11]]~~ 19, wherein the cable (21) is ~~led~~ received into the sensor node (20) through an outlet formed in the upper part of the skirt (22).

Claims 25-30: (cancelled)

31. (Currently Amended) A sensor arrangement according to claim ~~[[1]]~~ 13 further comprising a housing (27) that encloses at least one geophone (30), and the geophone is positioned at the top of the cylindrical structure skirt (22) to contact the surrounding sediments when the housing is lowered into the seabed.

32. (Currently Amended) A method for operating a seismic mapping system comprising the steps of:

providing a plurality of sensor nodes (20) adapted to acquire pressure waves and shear waves from underwater geological formations and to transfer seismic data to a surface receiver, wherein each sensor node (20) comprises a substantially cylindrical skirt (22) having a bottom with an opening;

deploying [[a]] the plurality of sensor nodes on a seabed by penetrating the bottoms of the sensor nodes into the seabed; and,

recording seismic data and data concerning system behavior by telemetry.

33. (New) The method of claim 32 wherein the step of, penetrating the bottoms of the sensor nodes into the seabed, comprises the step of:

discharging sediment through an outlet formed in skirt.

34. (New) A sensor node (20) for use in seismic investigation of geological formations below the seabed comprising:

a substantially cylindrical skirt (22) having a bottom with an opening, the bottom adapted to penetrate into the seabed;

means for acquiring pressure waves and shear waves from the geological formations;

means for transferring seismic data to a surface receiver; and,

at least a first geophone (30).

35. (New) The sensor node of claim 34 wherein the skirt has a first opening adapted to discharge sediment when the sensor node is deployed.

36. (New) The sensor node of claim 35 wherein the bottom of the skirt has teeth adapted to contact the seabed.

37. (New) The sensor node of claim 35 further comprising:  
a housing (27) that encloses the first geophone (30) and is positioned at the top of  
the cylindrical skirt (22).
38. (New) The sensor node of claim 37 further comprising:  
an open cage (37) that encloses at least a first hydrophone (38) and is positioned  
above the housing (27).
39. (New) The sensor node of claim 35 further comprising:  
a grip (40) that is fixed at the top for use with a ROV ROT.
40. (New) The sensor node of claim 35 adapted to be connected to a control unit (11)  
through an acoustic insulated cable (21).
41. (New) The sensor arrangement according to claim 24 wherein the outlet is  
adapted to discharge sediment when the sensor node is deployed.